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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,528	01/22/2002	Hyung-Bok Choi	29926/37833	5987

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EXAMINER

WILLE, DOUGLAS A

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 08/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

12

Office Action Summary	Application No. 10/054,528	Applicant(s) CHOI, HYUNG-BOK	
	Examiner Douglas A Wille	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1 - 12, drawn to a device, classified in class 257, subclass 296.

II. Claims 13 - 20, drawn to a method, classified in class 438, subclass 238.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case it would be possible to form the device by fabricating the capacitor on a handle substrate and then bonding the capacitor to the substrate and removing the handle substrate.

3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Michael Hull on 29 June 2002 a provisional election was made with traverse to prosecute the invention of I, claims 1 - 12. Affirmation of this election must be made by applicant in replying to this Office action. Claims 13 - 20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 – 3, 5, 7 and 9 – 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohno.

7. With respect to claim 1, Ohno shows (see cover Figure and column 5, line 21 et seq.) a memory device with an insulating layer 310, 307 over a substrate 302 with a connecting part 312, a seed separating layer 314, a seed layer 313, an a capacitor with lower electrode 313, dielectric 315 and upper electrode 316.

8. With respect to claim 2, the seed layer is filled into the open region and is disposed between the connecting part and the dielectric.

9. With respect to claim 3, the seed separating layer 314 is silicon nitride (column 10, line 35) and the insulating layer 310 is BPSG (column 7, line 28) which will have different etch characteristics since they are different materials.

10. With respect to claim 5, the seed layer 313a is Pt (column 7, line 40).

11. With respect to claim 7, the connecting part is planar with the layer 310 (see cover Figure).

12. With respect to claim 9, the plug is poly (column 7, line 32).

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13. With respect to claims 10 – 12, the layers 313a and 313a are Pt (column 7, line 39) and TiN (column 7, line 42), respectively. Ohno notes that layer 332 is a barrier layer (column 9, line 19) and the oxygen diffusion barrier characteristic of layer 333 is inherent.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohno in view of Asano et al.

16. Ohno does not provide the thickness of the layers but Asano et al. show a similar device (see cover Figure and column 5, line 15 et seq.) with layer 16 being 150 nm thick (column 11, line 45) and layer 51 being 45 nm thick (column 12, lines 13 and 16). It would have been obvious to choose these thicknesses since they are known to be functional.

17. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohno in view of Arkram.

18. Ohno shows the barrier layers as being above the plug and Akram shows a similar device (see cover Figure and column 9, line 13 et seq.) where the barrier layer 66 is formed in the via (column 9, line 27) as part of the connection. It would have been obvious to form the barrier layers in the via as part of the plug as a design alternative.

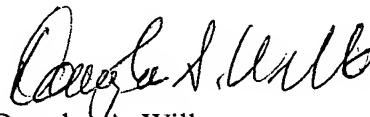
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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas A Wille whose telephone number is (703) 308-4949. The examiner can normally be reached on M-F (6:15-3:45).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Douglas A. Wille
Patent Examiner

daw
July 28, 2002